Game Changing Development

Sub-Kilowatt Electric Propulsion (SKEP)

Completed Technology Project (2017 - 2018)

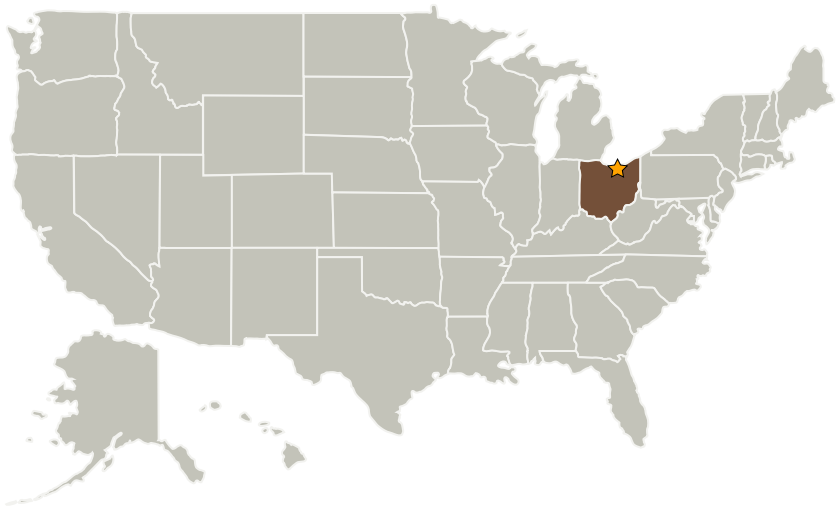
Project Introduction

The goal of the Sub-kilowatt Electric Propulsion (SkEP) project is to design, build and demonstrate the operation of a flight-qualified sub-kilowatt electric propulsion integrated system that will enable science and exploration missions using ESPA-class spacecraft. The project will develop a laboratory model propulsion system to evaluate and identify components, operation processes, and integration requirements. Successful development of a laboratory model will be used to leverage the development of a flight-qualified system, which will be demonstrated in a simulated space environment. Design requirements for the propulsion system include 5,000 hours of operation using baseline xenon propellant. This effort leverages government and industry expertise to define system requirements to ensure the resulting technology is capable of satisfying both near-term NASA science missions and commercial application interests.

Anticipated Benefits

Will enable high-value science missions within the constraints of an ESPA-class spacecraft Will enable ESPA-class spacecraft to have enhanced propulsive capabilities

Primary U.S. Work Locations and Key Partners



Sub-Kilowatt Electric Propulsion

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Game Changing Development

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Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations
Ohio

Project Transitions

October 2017: Project Start

October 2018: Closed out

Closeout Summary: The goal of the Sub-kilowatt Electric Propulsion (SkEP) pr oject was to design, build and demonstrate the operation of a fully integrated an d flight-qualified sub-kilowatt electric propulsion system. The development inves tment focused on the emerging small satellite industry and targeted a propulsio n system suitable for use on an ESPA-class satellite. An efficient and cost-effect integrated propulsion system for the ESPA-class will enable smaller satellites for new and more cost-effect science missions beyond LEO. The project developed a n engineering demonstration system that could be used to evaluate propulsion p erformance, identify components, operation processes, and integration requirem ents before the project was cancelled at the beginning of FY19. Commercializati on efforts underway with RMD under DOE SBIR (Source?)

Project Website:

https://www.nasa.gov/directorates/spacetech/game_changing_development/in

Project Management

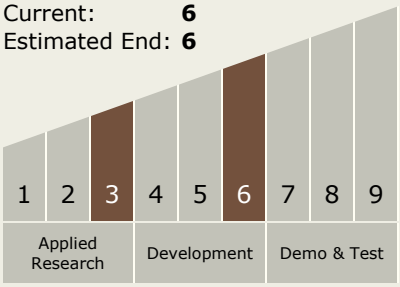
Program Director:
Mary J Werkheiser

Program Manager:
Gary F Meyering

Principal Investigator:
Dean P Petters

Technology Maturity (TRL)

Start: **3**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.2 Electric Space Propulsion

Target Destinations

The Moon, Mars